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10/790,327	03/01/2004	Masatoshi Homan	17505	2711

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EXAMINER

SMITH, PHILIP ROBERT

ART UNIT	PAPER NUMBER
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3739

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,327

Applicant(s)

HOMAN ET AL.

Examiner

Philip R. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5 and 7-35 is/are pending in the application.
- 4a) Of the above claim(s) 2,4,5,8-11,14,17-20 and 26-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,13,15,21-24,32,33 and 35 is/are rejected.
- 7) ☒ Claim(s) 7,12,16,25,31 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

- [01] Claim 13 will be interpreted: "...a determining device provided in the image pick-up unit for determining a validity of the image according to ~~the~~ a characteristic amount detected by ~~the~~ a characteristic amount detecting device..." The intent is clear; this interpretation resolves issues regarding antecedent basis.
- [02] Claim 22 will be interpreted "...a bit-length adjusting device for switching the bit length of the image data ~~to~~ among a plurality of lengths." The intent is clear; this interpretation resolves potential issues of indefiniteness. "Bit length of the image data" can not be switched to a plurality of lengths; it must be one length or another. Presumably, the bit length may be switched to some length among a plurality of lengths.
- [03] Appropriate correction is required.

Claim Rejections - 35 USC § 103

- [04] The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
- [05] Claims 1, 13, 15, 21, 24 & 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Madar (2004/0092825) in view of Gazdzinski (2002/0103417).
- [06] With regard to claim 1: Madar discloses an endoscope image pick-up apparatus comprising:
- [06a] an image pick-up unit ("detector 330," [0125]) for insertion into the body for

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capturing an image;

[06b] an extra-corporeal unit ("monitoring unit 250," [0154]) arranged outside the body, the extra-corporeal unit receiving the image ("data based on measurements from [detector 330]") captured by the image pick-up unit by radio ("rf communication system," [0154]);

[06c] a data transmitting device provided in the image pick-up unit ("communications system 350," [0154]) for transmitting the image obtained by the image pick-up device to the extra-corporeal unit;

[06d] a characteristic amount detecting device (composing "processor 340," [0153]) provided in the image pick-up unit for detecting a first amount of characteristics, the first amount of characteristics from the image obtained by the image pick-up unit, the first amount of characteristics detected by the characteristic amount detecting device being a number of pixels having a specific color ("ratio of intensities at detectors behind red-brown and yellow-green filters");

[06e] (the "processor 340" disclosed by Madar is inherently capable of further detecting a second "ratio of intensities" different from the first "ratio of intensities" from the image obtained by the image pick-up unit;)

[06f] a determining device (further composing "processor 340") provided in the image pick-up unit for determining a validity of the image according to the characteristic amount detected by the characteristic amount detecting

device ("threshold that indicates a malignant lesion," [0153]), the determining device having a first determining device for determining the validity of the image based on the number of pixels having a specific color detected as the first amount of characteristics ("ratio of intensities," as noted above), and a second determining device (further composing "processor 340") for determining the validity of the image based on the second amount of characteristics ("ratio of intensities") which is different from the first amount of characteristics;

[06g] (note that a detector capable of detecting a "ratio of intensities" is inherently capable of detecting a "first amount of characteristics," e.g. a ratio of 1:2, as well as a "second amount of characteristics," e.g. a ratio of 2:1.)

[06h] wherein the data transmitting device controls the data transmitting ratio in accordance with the determining result of the determining device.

[07] Madar does not disclose that the data transmitting device transmits the image obtained by the image pick-up device to the extra-corporeal unit "at a plurality of transmitting ratios."

[08] Gazdzinski discloses a "DSP 1024" which "optionally compresses [image data] for storage within the memory using any number of data compression techniques such as pulse code modulation (PCM) or delta pulse code modulation (DPCM), which are well known in the signal processing arts... Compression is used not only to minimize the size and increase the capacity of the memory 1026 within the

probe, but also to minimize the bandwidth necessary to transmit data via the data interface sub-circuit 1027."

- [09] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include Gazdzinski's "DSP 1024" in Madar's data transmitting device in order to "minimize the bandwidth necessary to transmit data." The resultant image data, which is compressed at a plurality of ratios ("such as pulse code modulation (PCM) or delta pulse code modulation (DPCM)"), is necessarily transmitted at a plurality of ratios.
- [10] The data transmitting device disclosed by Madar in view of Gazdzinski necessarily controls the transmitting ratio "in accordance with" the determining result of Madar's determining device. The phrase "in accordance with," broadly interpreted, merely requires mutual compatibility; there is no reason to suspect that the data transmitting device disclosed by Madar in view of Gazdzinski would be incompatible with Madar's determining device. Therefore, the data transmitting device, which controls the data transmitting ratio, is "in accordance with" the determining result of the determining device.
- [11] With regard to claim 35: Madar discloses that the second amount of characteristics, which is different from the first amount of characteristics, and is used for determining validity of an image, may be an average value of luminance values in the image ("step 130 includes measuring the intensity of light striking the detector at one or more specific wavelengths of the fluorescent signal," [0061]).

[12] With regard to claim 13: Madar discloses an endoscope image pick-up apparatus comprising:

[12a] an image pick-up unit ("detector 330," [0125]) for insertion into the body for capturing an image;

[12b] an extra-corporeal unit ("monitoring unit 250," [0154]) arranged outside the body, the extra-corporeal unit receiving the image ("data based on measurements from [detector 330]") captured by the image pick-up unit by radio ("rf communication system," [0154]);

[12c] a determining device (further composing "processor 340") provided in the image pick-up unit for determining a validity of the image according to [a] characteristic amount detected by [a] characteristic amount detecting device ("threshold that indicates a malignant lesion," [0153]), the determining device having a first determining device for determining the validity of the image based on the number of pixels having a specific color detected as the first amount of characteristics ("ratio of intensities," as noted above), and a second determining device (further composing "processor 340") for determining the validity of the image based on the second amount of characteristics ("ratio of intensities") which is different from the first amount of characteristics;

[12d] (note that a detector capable of detecting a "ratio of intensities" is inherently capable of detecting a "first amount of characteristics," e.g. a ratio of 1:2, as well as a "second amount of characteristics," e.g. a ratio of 2:1.)

[13] Madar does not disclose a data processing device provided in the image pick-up unit for performing the processing for reducing the data amount of the image obtained by the image pick-up device at a plurality of ratios.

[14] Gazdzinski discloses a data processing device ("DSP 1024," [0075]) which "optionally compresses [image data] for storage within the memory using any number of data compression techniques such as pulse code modulation (PCM) or delta pulse code modulation (DPCM), which are well known in the signal processing arts... Compression is used not only to minimize the size and increase the capacity of the memory 1026 within the probe, but also to minimize the bandwidth necessary to transmit data via the data interface sub-circuit 1027."

[15] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include Gazdzinski's data processing device in Madar's endoscope image pick-up apparatus in order to "minimize the bandwidth necessary to transmit data." The resultant image data, which is *compressed* at a plurality of ratios ("delta pulse code modulation (DPCM)"), is necessarily *transmitted* at a plurality of ratios.

[16] The data processing device disclosed by Madar in view of Gazdzinski necessarily controls the reducing ratio "in accordance with" the determining result of Madar's determining device. The phrase "in accordance with," broadly interpreted, merely requires mutual compatibility; there is no reason to suspect that the data processing device disclosed by Madar in view of Gazdzinski would be incompatible with Madar's determining device. Therefore, the data processing

device, which controls the reducing ratio of data amount, is "in accordance with" the determining result of the determining device.

[17] With regard to claim 15: Madar discloses that the characteristic amount detecting device comprises a pixel number detecting device ([0063]) for detecting the number of pixels having a specific color in the image as the characteristic amount, and the determining device determines that the image is valid when the number of specific-color pixels is a predetermined threshold value or more.

[18] With regard to claim 21: Madar discloses that the data processing device comprises an image reducing device for reducing image data at a plurality of reducing ratios ("pulse code modulation," as noted above).

[19] With regard to claim 24: Madar discloses that the data processing device comprises a compressing device for compressing the image data at a plurality of compressing ratios ("pulse code modulation," as noted above).

Additional Claim Rejections - 35 USC § 103

[20] Claims 22, 32 & 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madar and Gazdzinski in view of Hiyama (5,209,220).

[21] With regard to claim 22: Madar in view of Gazdzinski discloses a data processing device which compresses data for transmission using pulse code modulation, a compression algorithm which is inherently capable of compressing data at a variety of ratios.

[22] Madar in view of Gazdzinski does not disclose a bit-length adjusting device for

switching the bit length of the image data a plurality of lengths.

- [23] Hiyama discloses a bit-length adjustment device for switching the bit length of the image data among a plurality of lengths ("peak position detecting circuit 340," 35/14-16; which controls "blocked video signals of sizes, for example, of 1x2, 2x2 and 3x3," 36/16-18).
- [24] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the bit lengths of the image data generated by the image pick-up unit disclosed by Madar in view of Gazdzinski. This would be done in order to provide "general endoscope image[s]" which are "highly compressed" and "dyed endoscope image[s]" which "have high frequency components and therefore are compressed at a high picture quality" (36/57-37/4).
- [25] With regard to claim 32: Madar in view of Gazdzinski discloses a first determining device ("peak position detecting circuit 340," as noted above) which compares a characteristic amount detected by the characteristic amount detecting device ("histogram making parts 339R, 339G and 339B," 35/5) with a first threshold value to determine whether the image is valid or invalid ("the B component is low in the luminance level"), and outputs an invalid-indicating signal if the image is determined as the invalid one ("general endoscope image"), and the data transmitting device responds to the invalid-indicating signal outputted from the first determining device to lower the transmitting ratio of the corresponding image ("highly compressed by blocking respectively 2x2 and 3x3 sizes," 36/57-37/4).

[26] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the bit lengths of the image data generated by the image pick-up unit disclosed by Madar in view of Gazdzinski. This would be done in order to provide "general endoscope image[s]" which are "highly compressed" and "dyed endoscope image[s]" which "have high frequency components and therefore are compressed at a high picture quality" (36/57-37/4).

[27] With regard to claim 33: Madar in view of Gazdzinski discloses a second determining device ("peak position detecting circuit 340," as noted above) which compares the characteristic amount detected by the characteristic amount detecting device ("histogram making parts 339R, 339G and 339B," 35/5) with a second threshold value to determine whether the image is a target image or not ("the B component is low in the luminance level"), and outputs a target-indicating signal if the image is determined as the target one ("dyed endoscope image"), and the data transmitting device responds to the target-indicating signal outputted from the second determining device to raise the transmitting ratio of the corresponding image ("compressed at a high picture quality by blocking a 1x2 size," 36/57-37/4).

[28] At the time of the invention, it would have been obvious to a person of ordinary skill in the art to adjust the bit lengths of the image data generated by the image pick-up unit disclosed by Madar in view of Gazdzinski. This would be done in order to provide "general endoscope image[s]" which are "highly compressed" and "dyed endoscope image[s]" which "have high frequency components and therefore are compressed at a high picture quality" (36/57-37/4).

Additional Claim Rejections - 35 USC § 103

- [29] Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madar and Gazdzinski in view of Kobayashi (6,945,928).
- [30] Madar in view of Gazdzinski does not disclose an image cut-out device for cutting out a part of the image data and for outputting the cut-out image.
- [31] Kobayashi discloses that "[t]he electronic mask is achieved by replacing image signals corresponding to the above outer peripheral area of the imaging surface with black level signals in an image-processing unit. In a conventional masking method, an area to be masked (in the following referred to as a masking area) is located at the peripheral area of the in-focus area, and the masking area is previously defined in the design stage by regarding the size of the in-focus area and its position relative to the imaging surface."
- [32] At the time of the invention, it would have been obvious to a person of ordinary skill in the art that the "conventional masking method" disclosed by Kobayashi be use to cut out a part of the image data collected by the endoscope image pick-up apparatus disclosed by Madar in view of Gazdzinski. It is well known in the art that as noted above electronic mask be used to block out the periphery of an image which contains distortion or halation as a result of the objective optical system.

Allowable Subject Matter

- [33] Claims 7, 12, 16, 25, 31 & 34 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

- [34] Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

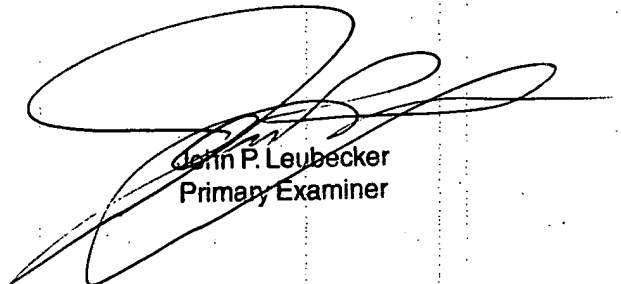
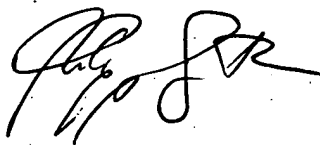
- [35] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
- [36] A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.
- [37] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip R. Smith whose telephone number is (571)

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272 6087 and whose email address is philip.smith@uspto.gov. The examiner can normally be reached between 9:00am and 5:00pm.

[38] If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on (571) 272 4764.

[39] Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John P. Leubecker
Primary Examiner